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Listing of Claims:

Claims 1-39 (Canceled).

40.   (New) An image processing apparatus for processing an
image of an object taken by an image input apparatus, said
image input apparatus comprising:

a reproducing environment converting unit which combines a
5   plurality of images of the object which are taken by the image
input apparatus under a plurality of respective environments, to
convert the image of the object into an observation image
according to an environment in which the observation image of the
object is to be observed, based on: (i) photographing environment
10   information acquired at a photographing time at which the object
is photographed with the image input apparatus, (ii) observing
environment information acquired at an observing time at which
the observation image of the object is observed, and (iii) object
feel-of-material information regarding texture of the object,
15   said object feel-of material information being acquired from the
plurality of images of the object.

41.   (New) The image processing apparatus according to
claim 40, wherein the object feel-of-material information
includes light reflection information regarding reflection of
light from the object.

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42.   (New) The image processing apparatus according to
claim 41, wherein the light reflection information includes
specular reflection information regarding specular reflection at
a surface of the object, said specular reflection varying in
5   accordance with an angle of the light with respect to the surface
of the object.

43.   (New) The image processing apparatus according to
claim 42, wherein the light reflection information further
includes diffuse reflection information regarding diffuse
reflection at the surface of the object.

44.   (New) The image processing apparatus according to
claim 41, wherein the light reflection information is acquired
based on a geometrical relationship between the image input
apparatus, the object and a light source for illuminating the
5   object at the photographing time, and wherein the geometrical
relationship is determined based on the plurality of images.

45.   (New) The image processing apparatus according to
claim 40, wherein the observing environment information includes
light color information regarding a color of illuminating light
emitted onto a place where the observation image of the object is
observed at the observing time.

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46.   (New) The image processing apparatus according to claim 45, wherein the photographing environment information includes light color information regarding a color of illuminating light emitted onto the object at the photographing time.

47.   (New) The image processing apparatus according to claim 40, wherein:

the photographing environment information includes light spectrum information regarding a spectrum of illuminating light

5   emitted onto the object at the photographing time;

the observing environment information includes light spectrum information regarding a spectrum of illuminating light emitted onto a place where the observation image of the object is observed at the observing time; and

10   the reproducing environment converting unit converts the image of the object based on a difference between the spectrum of the illuminating light emitted onto the object at the photographing time and the spectrum of the illuminating light emitted onto the place where the observation image of the object

15   is observed at the observing time.

48.   (New) The image processing apparatus according to claim 40, wherein the photographing environment information

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includes at least one of: (i) light intensity information

regarding an intensity of illuminating light emitted onto the

5   object at the photographing time, (ii) light spectrum information

regarding a spectrum of the illuminating light, (iii) light

direction information regarding a direction of the illuminating

light with respect to the object, (iv) light source position

information regarding a position of at least one light source for

10   emitting the illuminating light with respect to the object,

(v) light source form information regarding a form of the at

least one light source, and (vi) light source quantity

information regarding a quantity of the at least one light

source.

49.   (New) The image processing apparatus according to

claim 40, wherein the photographing environment information

includes at least one of: (i) object form information regarding a

form of the object, (ii) object color information regarding a

5   color of the object, (iii) object direction information regarding

a direction of the object with respect to the image input

apparatus, and (iv) object position information regarding a

position of the object with respect to the image input apparatus.

50.   (New) The image processing apparatus according to

claim 40, wherein the observing environment information includes

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at least one of: (i) light intensity information regarding an

intensity of illuminating light emitted onto a place where the

5   observation image of the object is observed at the observing

time, (ii) light spectrum information regarding a spectrum of the

illuminating light, (iii) light direction information regarding a

direction of the illuminating light with respect to the object in

the observation image, (iv) light source position information

10   regarding a position of at least one light source for emitting

the illuminating light with respect to the object in the

observation image, (v) light source form information regarding a

form of the at least one light source, and (vi) light source

quantity information regarding a quantity of the at least one

15   source.

51.   (New) The image processing apparatus according to

claim 50, wherein the reproducing environment converting unit

comprises at least one of: (i) an observation illuminating light

position converting unit which converts the plurality of images

5   into images which are adapted to be respectively acquired when

the at least one light source for illuminating the object in the

image is moved to an arbitrary position at the observing time,

and (ii) an observation illuminating light form converting unit

which converts the plurality images into images which are adapted

10   to be respective acquired when the form of the at least one light

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source for illuminating the object is changed to an arbitrary

form at the observing time.

52.   (New) The image processing apparatus according to

claim 40, wherein the observing environment information includes

at least one of: (i) object position information regarding a

position of the object in the observation image, (ii) object

5   direction information regarding a direction in which the object

is directed in the image, and (iii) observer position information

regarding a position of an observer of the object in the image.

53.   (New) The image processing apparatus according to

claim 52, wherein the reproducing environment converting unit

comprises at least one of: (i) an object moving unit which

converts the plurality of images into images which are adapted to

5   be respectively acquired when the object in the image is directed

in an arbitrary direction, based on the object position

information, (ii) an object rotating unit which converts the

plurality of images into images which are adapted to be

respectively acquired when the object is directed in an arbitrary

10   direction, based on the object direction information, and

(iii) an observation position converting unit which converts the

plurality of images into images which are adapted to be

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respectively acquired when the direction in which the object is
directed is changed, based on the observer position information.

        54.   (New) The image processing apparatus according to
claim 40, further comprising:
        a reproduction environment variable image data producing
unit which produces reproduction environment variable image data
5   from the image of the object taken by the image input apparatus
by using the photographing environment information and the object
feel-of-material information; and
        a data transmitting apparatus which transmits the
reproduction environment variable image data to the reproducing
10   environment converting unit through one of a portable recording
medium and a network.

        55.   (New) The image processing apparatus according to
claim 54, wherein the reproducing environment converting unit
converts the transmitted reproduction environment variable image
data into the observation image.

        56.   (New) The image processing apparatus according to
claim 40, wherein the image input apparatus controls a turntable
for rotating the object at a desired angle, and picks up the
plurality of images of the object at a plurality of angles.

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57. (New) The image processing apparatus according to claim 56, wherein the turntable has an inclinable rotation axis.

58. (New) The image processing apparatus according to claim 40, wherein the image input apparatus comprises one of a single camera and two stereoscopically arranged cameras;

wherein the one of the camera and cameras comprises one of a digital still camera, a video camera and a multi-spectrum camera.

59. (New) The image processing apparatus according to claim 40, further comprising an image output apparatus which outputs the observation image of the object;

wherein the observing environment information is information regarding an environment in which the observation image of the object output from the image output apparatus is observed.

60. (New) The image processing apparatus according to claim 59, wherein the image output apparatus comprises a head mounted display which is adapted to display at least one of a stereoscopic observation image of the object and a holographic observation image of the object.

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61.   (New) The image processing apparatus according to
claim 60, wherein the head mounted display comprises a gyroscopic
sensor which detects a change of the observing environment
information, and which changes the displayed observation image in
accordance with movement of the head mounted display.

62.   (New) The image processing apparatus according to
claim 40, wherein the image input apparatus picks up the
plurality of images of the object in accordance with a preset
program; and

5   wherein when the plurality of images are picked up, the
object is illuminated at different angles by a source of
illumination for illuminating the object on a photographing side,
said source of illumination being arbitrarily movable.

63.   (New) The image processing apparatus according to
claim 40, wherein the reproducing environment converting unit
comprises an image interpolating and composing unit for combining
the plurality of images.

64.   (New) The image processing apparatus according to
claim 40, wherein the photographing environment information
includes information regarding the image input apparatus, and the

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observing environment information includes information regarding the image output apparatus.

65. (New) An image processing apparatus for processing an image of an object taken by an image input apparatus, said image processing apparatus comprising:

a reproducing environment variable image data producing unit

5   which combines a plurality of images of the object taken under a respective plurality of environments to produce reproducing environment variable image data based on: (i) photographing environment information acquired at a photographing time at which the object is photographed by the image input apparatus, and

10   (ii) object feel-of-material information regarding a texture of the object, said object feel-of material information being acquired from the plurality of images of the object.

66. (New) The image processing apparatus according to claim 65, further comprising a reproducing environment converting unit which converts the reproducing environment variable image data into an observation image in accordance with an environment

5   in which the observation image of the object is observed, by applying observing environment information acquired at an observing time at which the observation image is to the reproducing environment variable image data.

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67.   (New) An image processing method for processing an
image of an object taken by an image input apparatus, said image
processing method comprising:

picking up a plurality of images of the object under a
5   respective plurality of environments with the image input
apparatus; and

thereafter combining the plurality of images of the object
to convert the image of the object into an observation image in
accordance with an environment in which the image of the object
10   is observed, based on (i) photographing environment information
acquired at a photographing time at which the object is
photographed with the image input apparatus, (ii) observing
environment information acquired at an observing time at which
the observation image of the object is observed, and (iii) object
15   feel-of-material information regarding texture of the object,
said object feel-of material information being acquired from the
plurality of images of the object.

68.   (New) An image processing method for processing an image
of an object taken by an image input apparatus, said image
processing method comprising:

picking up a plurality of images of the object under a
5   respective plurality of environments with the image input
apparatus; and

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thereafter combining the plurality of images of the object

to produce reproducing environment variable image data based on:

(i) photographing environment information acquired at a

10   photographing time at which the object is photographed, and

(ii) object feel-of-material information regarding texture of the

object, said object feel-of material information being acquired

from the plurality of images of the object.

69. (New) The image processing method according to claim 68,

further comprising converting the reproducing environment

variable image data into an observation image in accordance with

an environment in which the observation image of the object is

5   observed, by applying observing environment information acquired

at an observing time at which the observation image is observed

to the reproducing environment variable image data.

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